



## ITU-APT Foundation of India

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**Subject: Comments to Consultation Paper on “Method of allocation of spectrum for Public Mobile Radio Trunking Service (PMRTS), including auction, as a transparent mechanism”.**

Dear Sir,

**ITU-APT Foundation of India (ITU-APT) is a non-profit, non-political registered society, is working for last 10 years in India with the prime objective of encouraging involvement of professionals, corporate, public/private sector industries, R&D organizations, academic institutions, and such other agencies engaged in development of Indian Telecom sector in the activities of the International**

**Telecommunication Union (ITU) and the Asia Pacific Telecommunity (APT). The society has been registered with the registrar of the societies with its secretariat working at New Delhi. ITU-APT Foundation of India (ITU-APT) is sector Member of the ITU Development Bureau (ITU-D) and ITU Telecommunication Standardization Bureau (ITU-T) which manifests its usefulness of the Indian Telecom industry.**

**ITU-APT offers the following Comments to Consultation Paper on “Method of allocation of spectrum for Public Mobile Radio Trunking Service (PMRTS), including auction, as a transparent mechanism”.**



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## **ITU-APT Response to TRAI PMRTS Consultation**

**Q1. Do you agree that existing License Service Area (LSA) based authorization criteria for PMRT service license is appropriate? If not, should there be a city/district based authorization aligned with spectrum allocations?**

### **Answer to Q1:**

Yes, we support the current policy framework, under which PMRTS has been included as part of Unified License regime, which means the Service Area of PMRTS is the Telecom Circle/Metro area. This is appropriate considering the expanding geographical boundaries of cities and need for PMRTS services to be offered to customers across large areas around the cities as well as outside the metro areas where industrial clusters are located and new ones coming up. Such clusters on their own may not be viable but PMRTS services in those outlying areas could help support industrial development of the country and lead to efficient utilization of resources.

The problem area is the spectrum allocation for PMRTS, which is still done based on city basis. This doesn't help the PMRTS service operator in any way and in fact hampers its growth potential as its customer base is spreading with the ever expanding city boundaries. There is a need to enlarge the service area to cover Metro city and its satellite towns as the PMRTS base stations can cover up to 50 kms from BTS site, to encourage larger customer operational usage area. Typically

In light of the same and in line with the UL framework, the spectrum allocation for PMRTS services should be done based on service area (LSA) and not city wise. This way the PMRTS service operators will derive

better economies of scale and it will be easier for DoT also to manage PMRTS license and spectrum allocation thereon. On their part, PMRTS operators will be able to offer services to its customer base across a wider geographical area which in turn will not only encourage PMRTS operators to rollout more services but will enable better revenue generation for PMRTS operator and thereon for DoT.

Also it is important to note that the PMRTS technologies are different from cellular technologies. Therefore the spectrum allocation has to be done on BTS basis. While the cellular technologies work on the principle of interference limited coverage, Coverage in the trunking technologies are based on transmitter power and line of sight considerations. Therefore the spectrum charges need to be levied on the basis of number of base or repeater stations. This is the normal practise followed in all countries.

**Q2. Do you suggest any other criteria/change in license/ area of authorization for PMRT service? Elaborate your suggestions with supporting facts.**

**Answer to Q2:**

The major challenge for the growth of PMRTS service today is the artificial license limit for the handsets. While handsets for cellular Mobile are freely allowed to be imported/manufactured, the PMRTS handsets are restricted and strictly rationed by the DOT through import licenses. This policy leads to inefficient use of spectrum.

Presently DOT allows only 90 (+10%) trunking terminals to be imported for each frequency Channel of 25 KHz. This limits the number of users and does not permit the operators to maximize the spectrum utilization and therefore this limit should be removed. This can best be done by putting the user terminals on OGL and permitting their import/sale without WPC import license.

**Q3. Do you suggest any change in the duration of license from the present duration of 20 years? Please provide supporting justification.**

**Answer to Q3:**

The present duration of 20 years for the PMRTS license is adequate. However, there should also be an option to extend the license at end of the 20 year period.

**Q4. Keeping in view the existing PMRT services market size and growth potential, which methodology of allocation of spectrum will be most suitable for PMRT services?**

**(a) Auction (or)**

**(b) Administrative allocation**

**Kindly provide supporting arguments for your choice.**

**Answer to Q4:**

We support Administrative allocation of spectrum for PMRTS. This is for following reasons: The market for Trunked Radio is relatively small with no direct competition from other services. Unlike cellular services, it is not intended for general public, but is used to provide group communications meant for person-to-person and person-to-group in sectors such as for Ambulance services, Forest management, Manufacturing, Logistics, Oil & Gas, Mining, Construction projects, Courier services, Utilities like Municipal services, electricity, water etc., maintenance and operation of Roads, Airports, seaports etc. The total PMRTS subscriber base is less than 60000 users as compared to over a billion cellular wireless subscribers. Therefore it is illogical to compare PMRTS with cellular services. It may also be noted that other countries also treat these services under Administrative allocation.

**Q5. Do you propose any other methodology other than the options provided in Q4 above for allocation of spectrum for PMRTS? Please provide detailed justifications.**

**Answer to Q5:**

We propose administrative allocation. However, we also propose that the handsets for trunking services should be allowed freely for import and these should be removed from the restricted list under the import-export policy and delinking of the same from spectrum allocation. This will promote growth of the PMRTS services.

**Q6. If you have opted for auction as the methodology for allocation of spectrum for PMRTS,**

- (a) What criteria/norms should be there for auction of spectrum so that efficient utilization of the spectrum is ensured? Should there be preference for Digital PMRTS networks?**
- (b) Should the spectrum auction be held on LSA basis or city basis?**
- (c) What should be the effective date of allocation of spectrum (if won through the process of auction)?**
- (c) What should be the rollout obligations for PMRT service providers?**
- (d) What should be the penalty to be imposed in case of non-compliance of roll out obligation? Please provide detailed justifications?**

**Answer to Q6:**

We do not support auctions for PMRTS.

**Q7. If you feel administrative allocation is the best methodology, then**

- (a) Are the existing criteria of assignment of RF carriers sufficient or should there be different criteria/norms for assignment of spectrum?**

**If existing criteria is not sufficient, what are the proposed criteria for such assignments so that efficient utilization of the spectrum is ensured?**

**(b) Should administrative price of spectrum be calculated LSA wise? If yes, what should be the basis and formula for determination of administrative price? Suggest alternate calculations, if any.**

**Answer to Q7:**

a) As per current license conditions for PMRTS, not more than five channels (frequency pairs) are allotted initially for Analog system and for Digital systems upto 30 frequency channels (25KHz each) depending on the availability and justification. Any additional RF frequency pair is allocated only when 90% of capacity is reached. The capacity calculations are driven by the consideration of loading of 90 radios per channel.

Most of the current PMRTS networks are Analog and hence have very limited frequency allotted. There are two key parameters that determine the requirement of frequencies or number of RF carriers i.e. Coverage and Capacity. Typically a PMRTS service provider will need to rollout a network to cover the entire city or service area from the very beginning in order to provide services to its customers. Given that these PMRTS networks are deployed using high power repeater sites so as to cover maximum area with minimum number of sites, the frequency reuse is also limited. Lastly, in terms of capacity, the PMRTS service provider would aim to garner maximum possible users across its network. However, the repeater sites within main city area would always have higher loading as compared to repeater sites on the periphery.

The framework of considering 90 radios per channel is only a guiding factor. It should not form the basis of allocation of spectrum. Allocation of frequency should not be limited to 5 pairs. It should be based on the

technical evaluation and justification based on coverage and capacity calculations.

PMRTS service providers should be encouraged to migrate to Digital from currently mostly Analog networks. They should be incentivised to do so and no new licenses or extension of licenses should be permitted in Analog.

If the PMRTS operator can load more users per channel, then he should be incentivised. Limiting number of users on per channel basis is stunting the growth of PMRTS service and also limiting revenue of DoT & PMRTS operator. Adding more subscribers per channel will not only be efficient use of spectrum but also enable to generate more revenue for operator and more revenue collection for DoT.

In order to promote migration to Digital, there should be technology standardisation based on open standards like TETRA, APCO P25 and DMR which are globally recognised truly open standard technologies as also adopted by ITU.

b) Administrative price of spectrum should be calculated based on the number of base/repeater stations and the number of frequency pairs. Typical formula used in many countries is as below:

<b>Number of outdoor base stations</b>	<b>x</b>	
<b>Number of in-building base stations</b>	<b>y</b>	
<b>Total number of base stations</b>	<b>x+y</b>	
<b>Base station licence fee</b>	<b>₹ 4800</b>	<b>Per base stn.</b>
<b>Total annual licence fee for base stations</b>	<b>X+Y* 4800</b>	

<b>Spectrum Application and Processing fees (Only applicable for newly assigned frequencies)</b>		
<b>Per 25 kHz channel per freq per annum</b>	₹ 4800	
<b>Per 25 kHz pair of frequencies</b>	₹ 9600	
<b>Application &amp; processing fee for N new pairs</b>	$N * 9600$	r
<b>Annual fees for radio frequency-Frequencies for Networks; for exclusive use; for 25 kHz single frequency</b>	₹ 4800	per frequency
<b>Annual fees for radio frequency-Frequencies for Networks; for exclusive use; for 25 kHz pair</b>	₹ 9600	per pair
<b>Total annual Licence fees per annum:</b>		
<b>Base station licence fee (a)</b>	$(x+y)*4800$	
<b>Radio frequency fee for N pairs (b)</b>	$N*9600$	
<b>Total annual fees</b>	<b>a+ b</b>	

NO FEES SHOULD BE CHARGED FOR USER TERMINALS to promote growth of the service

**Q8. Out of the bands discussed in Table 3.2 above, which are the preferable bands for the PMRT services in India? List out in the order of priority. Are the bands suggested by DoT as mentioned in the Table 3.3 will be adequate to cater for the spectrum requirements of PMRTS?**

**Answer to Q8:**

As per NFAP India remark IND 41 the band 811-814 MHz paired with 856-859 MHz has been allocated for Digital trunking services. Considering migration to Digital trunking, this band should be the main band for PMRTS. This will provide 240 channel within this 3 MHz channel block. This should suffice given the current subscriber base of PMRTS users as well as its future growth, once the restriction on the number of users per channel is removed.

Based on availability of equipment across all open technology standards (TETRA, APCO P25 and DMR), another candidate band could be 410-430 as well as 300 MHz bands. A channel block of 3 MHz could be kept aside for PMRTS within the band 410-430 MHz.

Based on above, a total of 6 MHz can be allotted for PMRTS service providers.

**Q9. Taking into consideration the existing allocation by DoT and Authority's latest recommendation for delicensing spectrum for M2M, would it be feasible to consider the band 819-824 MHz/ 864-869 MHz for allocation to PMRTS licensees?**

**Answer to Q9:**

6+6 MHz spectrum in 811-814/856-859 MHz and 410-430 MHz with a migration to digital resulting in a total of 480 frequency channels which is more than adequate considering the current PMRTS service providers subscriber base and possible future growth. Therefore we do not recommend the band 814-819/859-869 MHz or 819-824 MHz/ 864-869 MHz for allocation to PMRTS licensees.

Spectrum reframed within 806-824/851-869 MHz with this reallocation should be considered for PPDR Emergency Services which would require

broadband in the future. ITU has recommended 814-824/859-869 MHz as one of the key harmonized band for PPDR broadband.

With a move aimed towards Digital migration, the block size of spectrum should be reduced from 25 KHz to 12.5 KHz. Countries across the world like USA, Singapore, Australia etc have adopted 12.5 KHz channel raster as that supports all the trunking technologies.

Q10. Which other candidate band will be most suitable for PMRTS if the band 819-824 MHz/ 864-869 MHz (5 MHz) is not to be considered for allocation to PMRT services? Please support your answer with facts.

**Answer to Q10:**

Proposed spectrum in 811-814/856-859 MHz and 410-430 MHz would mean a total of 480 frequency channels which is more than adequate considering the current and future PMRTS service growth, provided the restriction on number of users per channel is removed. The current high spectrum usage is due to the artificial limit of 90 users per channel.

Even after that if more channels are needed, the same can be given from 300 or 400 MHz ranges.

**Q11. What should be the minimum block size of spectrum to be put for auction? How contiguity of spectrum can be ensured.**

**Answer to Q11:**

We do not support spectrum auctions for PMRTS.

**Q12. In case spectrum is to be auctioned, which methodology / approach(s) should be adopted for valuation and associated reserve price of Spectrum for PMRTS and why? Please justify your answer.**

**Answer to Q12:**

We do not support spectrum auctions for PMRTS.

Q13. In case spectrum is to be auctioned, which methodology/approach(s) should be adopted for calculation of spectrum usage charge? Please justify your answer.

**Answer to Q13:**

We do not support spectrum auctions for PMRTS.

**Q14. Whether the concept of spectrum cap shall be applicable on assignment of spectrum to the licensees for PMRTS? Justify your answer.**

**Answer to Q14:**

The concept of spectrum cap is typically considered to prevent the various service providers from hoarding large chunks of spectrum and working in an anti-competitive manner. Such spectrum cap makes sense for critical Cellular access spectrum. However, in this case of PMRTS, there are very few service providers and there is no lack of spectrum. Hence there should not be any spectrum cap applicable on assignment of spectrum to licensees for PMRTS at this stage.

**Q15. In case you are of the view that provision of spectrum cap should be there, what should be the mechanism for applicable spectrum cap?**

**(a) Whether any one of the spectrum cap i.e. intra-band or overall shall suffice the requirement as of now or**

- (b) both caps should be made applicable simultaneously?**  
**(c) What should be the appropriate criteria for spectrum cap?**

**Answer to Q15:**

As there is no shortage of spectrum for PMRTS, there is no reason for any spectrum caps.

**Q16. What should be the duration/validity of assignment of spectrum to PMRT service provider? Should it be with the same duration as that of the license (20 Years)? Please support your answer with facts.**

**Answer to Q16:**

The duration of validity of the allocation of spectrum should be aligned to the validity of the PMRTS license i.e. 20 years. The assignment of spectrum needs to be administered on long term basis to boost confidence of PMRTS service providers and the industry as they invest large CAPEX for rollout of such PMRTS networks and need adequate time duration to recover their costs and sustain.

**Q17. If the duration of validity of spectrum is to be made lesser than the validity of license, should there be an option with the licensee to renew? What should be the specific conditions for such renewal?**

**Answer to Q17:**

RC - The duration of validity of spectrum should be aligned to the validity of the PMRTS license. There can be certain conditions like Rollout obligation for the service area for which PMRTS license and spectrum has been allotted.

\_\_\_\_\_END OF RESPONSE\_\_\_\_\_